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Anxiety, Depression, and Associated Factors among Teachers during the COVID-19 Pandemic: A Multi-Centre Cross-Sectional Study in Zambia

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Abstract

Background: The coronavirus disease 2019 (COVID-19) pandemic inflicted unprecedented work-related strain, negatively impacting the mental health of many, including teachers. This study assessed the impact of COVID-19 on the mental health of secondary school teachers in Lusaka, Zambia. **Materials and Methods**: This cross-sectional study was conducted among 388 teachers in selected secondary schools in Lusaka district, Zambia, from July 2022 to September 2022. Data were collected using the Hospital Anxiety and Depression Scale (HADS) and analysed using IBM SPSS version 28.0. Statistical significance was determined at a 95% confidence level. Logistic regression was used to determine the factors that influenced anxiety and depression levels among teachers. **Results:** Among the 388 teachers, the prevalence of anxiety and depression was 72% and 73%, respectively. Factors associated with anxiety were; being quarantined due to COVID-19 (AOR = 1.96, 95% CI: 1.11 - 3.45), having a chronic condition (AOR = 2.45, 95% CI: 1.19 - 5.05), having a friend or relative with COVID-19 (AOR = 1.8, 95% CI: 1.08 - 2.99) and expe-

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riencing death of either a friend or relative (AOR = 2.36, 95% CI: 1.48 - 3.76). Factors associated with depression included; having a friend or relative with COVID-19 (AOR = 2.63, 95% CI: 1.38 - 5.00), experiencing the death of either a friend or relative (AOR = 2.03, 95% CI = 1.16 -3 .54) and suffering income disruptions due to COVID-19 (AOR = 1.65, 95% CI: 1.02 - 2.66). **Conclusions**: This study found that anxiety and depression were highly prevalent, especially among teachers with predisposing factors. These findings demonstrate the need to develop and implement strategies to tackle mental health challenges among teachers, especially during pandemic periods.

Subject Areas

Epidemiology

Keywords

COVID-19, Mental Health, Anxiety, Depression, Secondary Schools, Teachers, Zambia

1. Introduction

The coronavirus disease 2019 (COVID-19) is a respiratory infectious disease caused by severe acute respiratory syndrome coronavirus-2 (SARs-Cov-2) [1]-[6]. It erupted in Wuhan City, China, in 2019 and was declared a global pandemic on 11th March 2020 by the World Health Organization (WHO) [7] [8]. Most infected people developed mild to moderate and sometimes severe symptoms and presented with fever, cough, sore throats, chest pain, and difficulty breathing [9] [10] [11] [12] [13].

The COVID-19 pandemic negatively impacted livelihoods and professions in different and complex ways [14] [15] [16] [17]. The teaching profession was one of the most affected categories [9] [18] [19] [20], leading to the transition of learning from physical classrooms to online learning [21]-[29]. Following the COVID-19 restrictions, several psychological impacts have been reported among teachers in different studies [30]-[35].

The impact of COVID-19 on teachers' mental health varies tremendously, and possibly many were under more intense psychological stress than before [14] [33] [36] [37] [38] [39]. Some psychological impacts of COVID-19 include fear, worry, anxiety, depression, stress, social isolation, increased alcohol intake, and insomnia, which tend to be normal reactions to perceived or actual threats [1] [40]-[45].

Evidence has shown that some of the factors that could have led to the mental health impacts of COVID-19 on teachers were technological challenges associated with the provision of online learning [46] [47] [48], fear of contracting the disease, and adherence to the recommended preventive measures [46]. Additionally, studies reported that individuals were quarantined and isolated were

most likely to experience mental health challenges [49] [50] [51] [52]. Furthermore, isolation from families and friends, boredom, restricted freedom, and uncertainty may lead to mental health problems [33] [49] [53]. Overall, teachers experienced increased symptoms of anxiety, depression, burnout, job insecurity, and stress during the COVID-19 pandemic [40] [54]-[62]. This pool of evidence indicates the urgent need to develop and implement strategies to mitigate mental health impacts occasioned by pandemic crises such as that experienced with COVID-19 [63] [64] [65].

In Zambia, the effect of COVID-19 on the mental health of individuals has been reported [15] [35] [52] [66] [67]. However, there is a paucity of information on the impact of COVID-19 on the mental health of secondary school teachers, a critical subset of educational professionals who prepare students for future lifelong careers. This study, therefore, assessed the impact of COVID-19 on anxiety and depression levels of teachers and associated factors from selected secondary schools in Lusaka, Zambia.

2. Materials and Methods

2.1. Study Design, Site, and Population

This cross-sectional study was conducted from July 2022 to September 2022 among secondary school teachers in Lusaka district, Lusaka Province, Zambia. Lusaka is the capital city of Zambia and has a population of more than 2,191,225, with a population density of 100 persons per square kilometer [68]. Enrolment eligibility was based on being a teacher in a selected secondary school and providing informed consent to participate in the study.

2.2. Sample Size Determination and Sampling Criteria

A total of 32 secondary schools were randomly sampled from 111 schools in Lusaka. The sample size was estimated using Cochran's formula, as explained in a previous study [69]. Since no prior related study was conducted in Zambia, an assumed prevalence of 50% and a margin of error of 5% were used, resulting in a minimum sample size of 385. Participants were selected using a simple random sampling to provide a chance for every teacher to be included in the study. To meet our estimated sample size, we circulated 420 questionnaires across the 32 schools, with each school receiving either 13 or 14 questionnaires. Responding to a questionnaire took approximately 20 to 30 minutes per participant.

2.3. Data Collection

Data collection was done using the validated English version of the Hospital Anxiety and Depression Scale (HADS) [70] [71]. This tool has been used to assess anxiety and depression levels during the COVID-19 pandemic across populations [72] [73] [74] [75]. The questionnaire has a scale of 0 - 21, of which scores of 0 - 7 imply normal (no anxiety or depression), 8 - 10 refers to mild anxiety, and 11 - 21 suggest moderate to severe anxiety [72] [76]. The questions that were

used to assess the factors associated with anxiety and depression were adapted from a previous study [77].

2.4. Statistical Analysis

The data collected were entered into Microsoft Excel (Microsoft, Redmond, WA, USA) cleaned, checked for completeness, and coded before being exported into Statistical Package for the Social Sciences (SPSS) version 28.0 (IBM Corp Armonk, NY: USA) for analysis. In this study, having anxiety was defined as a combination of borderline and abnormal anxiety levels (that is HADS score of eight and above). In logistic regression analysis, just like anxiety, depression was defined as a dichotomous variable as "having depression" (borderline plus abnormal levels) and "not having depression" (normal levels of depression). Firstly, descriptive statistics of sociodemographic characteristics and mental health (anxiety and depression) factors were computed and summarised as frequencies and percentages. Secondly, Pearson's chi-square test of independence was performed to assess the association between categorical variables. Lastly, univariate analysis and multivariate logistic regression were conducted to identify factors associated with anxiety and depression and control for possible confounders. In univariate analysis, all variables with a $p < 0.2$ were transferred into the multivariate logistic regression model. The variables with a $p < 0.05$ in multivariate logistic regression were considered significant and were reported as the factors that predisposed school teachers to anxiety and depression. Sociodemographic factors in this study were not included in multivariate logistic regression model because they had higher p-values ($p > 0.20$) than the set threshold of 20% at univariate analysis stage. Odds ratios, p-values, and 95% confidence intervals were reported to estimate the strength of the association. A p-value of less than 0.05 was statistically significant for all statistical analyses at a 95% confidence level.

2.5. Ethical Considerations

This study was conducted after Ethical approval (protocol number 2022112301178) from the University of Zambia Health Sciences Research Ethics Committee (UNZAHSREC). Participation in this study was voluntary and the research was conducted ethically regarding privacy, confidentiality, and respect for autonomy. All participants were informed about the purpose of the study and were enrolled upon providing informed and written consent.

3. Results

3.1. Sociodemographic Characteristics of Study Participants

A total of 388 secondary school teachers were enrolled in the study giving a response rate of 92.4%. The minimum age of the respondents was 18 years, and a modal age group ranged from 34 to 41 years. The majority of the participants were female (56.7%) and married (70.1%) (**Table 1**).

Table 1. Sociodemographic characteristics of study participants.

Variables	Frequency (n)	Percentage (%)
Age category (years)		
18 - 25	67	17.3
26 - 33	106	27.3
34 - 41	120	30.9
42 - 49	61	15.7
50 and above	34	8.8
Sex		
Female	220	56.7
Male	168	43.3
Religion		
Christianity	379	97.7
Islamic	9	2.3
Marital status		
Single	98	25.3
Divorced	11	2.8
Widowed	7	1.8
Married	272	70.1
Residence		
Rural-urban	6	1.5
Urban	382	98.5

3.2. Experiences of Secondary Teachers during the COVID-19 Pandemic

Of the total participants, 34.8% had suffered from COVID-19, and 32.7% had been quarantined. In addition, 68.8% and 51.8% had a friend or relative who had suffered from COVID-19 and died, respectively. Further, at least 84.3% of the participants indicated practising physical or social distancing, while 33.5% perceived the COVID-19 preventive measures as stressful. Twenty-eight (7.2%) had a mental health problem, 19.1% had a chronic condition, and 44.1% had their income negatively affected by the COVID-19 pandemic (Table 2).

3.3. Levels of Anxiety and Depression among Secondary School Teachers

The study found that most secondary school teachers experienced severe symptoms of anxiety and moderate symptoms of depression (Table 3).

Table 2. Experiences of participants during the COVID-19 pandemic.

Variables	Frequency (n)	Percentage (%)
Suffered from COVID-19		
No	230	59.3
Yes	135	34.8
Do not know	23	5.9
Friends or relatives had COVID-19		
No	109	28.1
Yes	267	68.8
Do not know	12	3.1
A friend or relative died from COVID-19		
No	174	44.8
Yes	201	51.8
Do not know	13	3.4
Was quarantined due to COVID-19		
No	261	67.3
Yes	127	32.7
Practice physical/social distancing		
No	56	14.4
Yes	327	84.3
Do not know	5	1.3
COVID-19 preventive measures are stressful		
No	258	66.5
Yes	130	33.5
Have a mental health problem		
No	360	92.8
Yes	28	7.2
Had chronic condition		
No	314	80.9
Yes	74	19.1
Income was affected due to COVID-19		
No	217	55.9
Yes	171	44.1

Table 3. Distribution of anxiety and depression levels among secondary school teachers.

Variable	Mild n (%)	Moderate n (%)	Severe n (%)
Anxiety	108 (28.0)	87 (22.0)	193 (50.0)
Depression	105 (27.0)	146 (38.0)	137 (35.0)

3.4. Factors Associated with Secondary School Teachers' Anxiety

Teachers who had a friend or relative with COVID-19 were 1.8 times more likely to have anxiety (AOR = 1.80, 95% CI: 1.08 - 2.99); teachers who had a friend or relative who had died from COVID-19 were 2.36 times more likely to have anxiety than those who did not (AOR = 2.36, 95% CI: 1.48 - 3.76). Furthermore, teachers who were quarantined due to COVID-19 and those with chronic conditions were 1.96 times (AOR = 1.96, 95% CI: 1.11 - 3.45) and 2.45 times (AOR = 2.45, 95% CI: 1.19 - 5.05) more likely to have anxiety, respectively, compared to those who did not (Table 4).

3.5. Factors Associated with Secondary School Teachers' Depression

Teachers who had a friend or relative with COVID-19 were 2.63 times more likely to have depression (AOR = 2.63, 95% CI: 1.38 - 5.00); also, teachers who had a friend or relative who died from COVID-19 were 2.03 times more likely to have depression than those who did not (AOR = 2.03, 95% CI: 1.16 - 3.54). Furthermore, teachers whose income was negatively affected due to COVID-19 were 1.65 times more likely to be depressed than those who did not (AOR = 1.65, 95% CI: 1.02 - 2.66) (Table 5).

4. Discussion

The COVID-19 pandemic impacted the mental health of individuals across professions, teachers being no exception. The current study revealed a high prevalence of anxiety and depression among the study participants. Some factors were associated with anxiety, including having a friend or relative who had contracted COVID-19, having a friend or relative who died from COVID-19, being quarantined during the pandemic, and having a chronic condition. Additionally, factors associated with depression included having a friend or relative who contracted COVID-19, experiencing the loss of a friend or relative due to COVID-19, and facing financial strain due to the effect of COVID-19 on their flow of income.

The prevalence of anxiety (72.0%) among secondary school teachers in our study was alarmingly high during the COVID-19 pandemic; this could significantly affect their work output and, indirectly, cascade to negatively impact their students. The high prevalence of anxiety among teachers during the COVID-19 pandemic was also reported in Chile (73%) [55], Jordan (67.9%) [78], and Spain (66.8%) [54]. However, the prevalence of anxiety reported in our study was higher than that found in Malaysia (55.5%) [79], Poland (50.7%) [33], Brazil

Table 4. Factors influencing anxiety among secondary school teachers.

Variables	Univariate Logistic Regression				Multivariate Logistic Regression			
	p-value	COR	95% CI of COR		*p-value*	AOR	95% CI of AOR	
			Lower	Upper			Lower	Upper
Suffered from COVID-19								
No	Ref							
Yes	0.003	2.15	1.30	3.57	0.959	0.98	0.47	2.04
Do not know	0.116	2.44	0.80	7.41	0.671	1.30	0.39	4.31
Friends or relatives had COVID-19								
No	Ref							
Yes	0.001	2.28	1.42	3.66	0.024	1.80	1.08	2.99*
Do not know	0.998	1.00	0.00	0.00	0.998	1.00	0.00	0.00
A friend or relative died from COVID-19								
No	Ref							
Yes	0.0001	2.58	1.63	4.09	0.0001	2.36	1.48	3.76*
Do not know	0.998	1.00	0.00	0.00	0.998	1.00	0.00	0.00
Was quarantined due to COVID-19								
No	Ref							
Yes	0.002	2.35	1.38	3.97	0.020	1.96	1.11	3.45*
Practice physical/social distancing								
No	Ref							
Yes	0.067	0.51	0.25	1.05	-	-	-	-
Do not know	0.998	1.00	0.00	0.00	-	-	-	-
COVID-19 preventive measures are stressful								
No	Ref							
Yes	0.964	1.01	0.63	1.62	-	-	-	-
Had mental health problem								
No	Ref							
Yes	0.023	5.43	1.27	23.27	0.213	2.69	0.57	12.74
Had chronic condition								
No	Ref							
Yes	0.003	2.90	1.43	5.89	0.015	2.45	1.19	5.05*
Income was affected due to COVID-19								
No	Ref							
Yes	0.029	1.67	1.05	2.64	0.684	1.11	0.67	1.86

Key: AOR = Adjusted odds ratio, CI = Confidence interval, COR = Crude odds ratio, Ref = Reference category. *Factors that are significantly ($p < 0.05$) associated with anxiety after adjusting for potential confounders which included: suffering from COVID-19 and having a mental problem.

Table 5. Factors influencing depression among secondary school teachers.

Variables	Univariate Logistic Regression				Multivariate Logistic Regression			
	p-value	COR	95% CI of COR		*p-value*	AOR	95% CI of AOR	
			Lower	Upper			Lower	Upper
Suffered from COVID-19								
No	Ref							
Yes	0.0005	2.58	1.52	4.40	0.139	1.60	0.86	2.97
Do not know	0.473	1.43	0.54	3.76	0.861	1.10	0.39	3.08
Friends or relatives had COVID-19								
No	Ref							
Yes	0.000	3.72	2.29	6.05	0.003	2.63	1.38	5.00*
Do not know	0.162	2.64	0.68	10.28	0.120	7.69	0.59	100.80
A friend or relative died from COVID-19								
No	Ref							
Yes	0.0001	2.67	1.66	4.28	0.013	2.03	1.16	3.54*
Do not know	0.904	0.93	0.29	2.97	0.880	0.91	0.27	3.04
Was quarantined due to COVID-19								
No	Ref							
Yes	0.003	2.23	1.31	3.77	0.892	1.05	0.50	2.20
Practice physical/social distancing								
No	Ref							
Yes	0.474	0.78	0.40	1.53	-	-	-	-
Do not know	0.870	1.21	0.12	11.79	-	-	-	-
COVID-19 preventive measures are stressful								
No	Ref							
Yes	0.965	1.01	0.63	1.62	-	-	-	-
Had mental health problem								
No	Ref							
Yes	0.261	1.77	0.65	4.78	-	-	-	-
Had chronic condition								
No	Ref							
Yes	0.380	1.31	0.72	2.37	-	-	-	-
Income was affected due to COVID-19								
No	Ref							
Yes	0.010	1.85	1.16	2.95	0.042	1.65	1.02	2.66*

Key: AOR = Adjusted odds ratio, CI = Confidence interval, COR = Crude odds ratio, Ref = Reference category. *Factors that are significantly ($p < 0.05$) associated with anxiety after adjusting for potential confounders which included: suffering from COVID-19 and having a mental health problem.

(49.4%) [80], Bangladesh (43.7%) [81], and China [82]. The current study's high anxiety levels among teachers could be explained by challenges with coping mechanisms in the transition from physical learning to online-based learning which was introduced abruptly due to the closure of schools. Similar observations have been made in other studies [54] [83] [84] [85], partially due to the use of educational technology and challenges associated with online learning, including poor internet connectivity and electricity outages [86]. Additionally, the uncertainties posed by the rapidly evolving updates regarding the pandemic could have further increased anxiety among teachers [56]. Therefore, it is important to ensure that proper preparations concerning orientations in the use of education technology platforms and adequate teacher support are considered in future related circumstances. Similarly, mental health and wellness for teachers should be prioritised and teachers need to be sensitised on how to handle anxiety and stress including mitigating against burnout and other mental challenges.

The prevalence of depression among teachers in our study was also high (73.0%), similar to what was reported in Jordan (78.7%) [78], Saudi Arabia (78.2%) [87], and Sudan (75.0%) [88]. However, lower levels of anxiety were reported in other studies, including 67.0% in Chile [55], 59% in China [82], and 34.5% in Bangladesh [81]. The depression among teachers has been reported to be due to fears of contracting COVID-19 and worries about infecting their families and friends [82]. The high prevalence of depression obtained in the current study is worrying and could ultimately affect their work performance. Relevant support structures are required to facilitate coping mechanisms, mental resilience, and increased morale and work satisfaction among teachers.

The present study found that teachers who had a relative or friend that had COVID-19 or died from it were more likely to suffer from anxiety. Our findings align with those reported from other studies where teachers who had a friend or relative who had suffered or died from COVID-19 were more likely to suffer from anxiety [54] [89]. Moreover, quarantined teachers and those with chronic conditions were more likely to experience anxiety similar to previous findings [49] [50] [78] [90] [91] [92]. In Japan, anxiety among teachers was found to be influenced by teachers' concerns for their safety and that of their families as well as concerns about the academic progress of their students [93]. Furthermore, the pressure to adapt to online teaching modes and the lack of on-boarding administrative support contributed to the anxiety that teachers experienced while transitioning to online learning platforms during the COVID-19 pandemic [56].

The current study revealed that teachers who had a friend or relative diagnosed with COVID-19 and/or died from it were more likely to suffer from depression. These findings corroborate findings from some studies in Chile, where most teachers experienced depression due to having a family history of COVID-19 or death associated with the pandemic [40] [89]. The present study also established that teachers whose income was negatively affected by the COVID-19 pandemic were more likely to suffer from depression. Therefore, the

effects of reduced or unstable income could have predisposed individuals to depression [92] [94]. Studies have shown that reduced income is one of the major factors that perpetrate mental health problems, especially among individuals, as this may affect their financial responsibilities [95]-[100]. Sensitisation of mental health problems should be heightened in schools to increase awareness among students and teachers.

We are aware that this study has limitations. For instance, this study was conducted in Lusaka district, therefore, the findings may not be generalised to the entire country. In addition, the use of a quantitative cross-sectional study may not provide the detailed factors that contributed to increased mental health challenges among teachers. However, the findings highlight the need to provide mitigation measures against the mental health impacts of disease outbreaks on the teaching profession. Therefore, we postulate the need to conduct in-depth qualitative studies to understand the factors that contribute to the mental health problems faced by teachers during pandemics like the COVID-19 crisis.

5. Conclusion

Our study reveals that secondary school teachers battled with considerable anxiety and depression in the wake of the COVID-19 crisis. The mental health challenges were particularly prominent among teachers who had personal relations falling ill or who succumbed to COVID-19. Moreover, those who were quarantined, had pre-existing chronic conditions, or faced financial hardships due to the pandemic were also disproportionately vulnerable to mental illness. Considering these findings, there is an urgent need to develop and implement effective measures to alleviate mental health challenges among teachers in secondary schools, and possibly in higher learning institutions. Doing so will ensure a healthy and conducive learning environment for optimum academic outcomes.

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Conflicts of Interest

The authors declare no conflicts of interest.

References

[1] World Health Organization (2022) Mental Health and COVID-19: Early Evidence of the Pandemic's Impact: Scientific Brief, 2 March 2022. https://www.who.int/publications/i/item/who-2019-ncov-sci_brief-mental_health-2022.1

[2] Morens, D.M., Breman, J.G., Calisher, C.H., Doherty, P.C., Hahn, B.H., Keusch, G.T., *et al.* (2020) The Origin of COVID-19 and Why It Matters. *American Journal of Tropical Medicine and Hygiene*, **103**, 955-959.

https://doi.org/10.4269/ajtmh.20-0849

[3] Margolin, E., Burgers, W.A., Sturrock, E.D., Mendelson, M., Chapman, R., Douglass, N., *et al.* (2020) Prospects for SARS-CoV-2 Diagnostics, Therapeutics and Vaccines in Africa. *Nature Reviews Microbiology*, **18**, 690-704. https://doi.org/10.1038/s41579-020-00441-3

[4] Lai, C.C., Shih, T.P., Ko, W.C., Tang, H.J. and Hsueh, P.R. (2020) Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) and Coronavirus Disease-2019 (COVID-19): The Epidemic and the Challenges. *International Journal of Antimicrobial Agents*, **55**, Article ID: 105924. https://doi.org/10.1016/j.ijantimicag.2020.105924

[5] Shereen, M.A., Khan, S., Kazmi, A., Bashir, N. and Siddique, R. (2020) COVID-19 Infection: Origin, Transmission, and Characteristics of Human Coronaviruses. *Journal of Advanced Research*, **24**, 91-98. https://doi.org/10.1016/j.jare.2020.03.005

[6] Mudenda, S., Daka, V., Matafwali, S.K., Skosana, P., Chabalenge, B., Mukosha, M., *et al.* (2023) COVID-19 Vaccine Acceptance and Hesitancy among Healthcare Workers in Lusaka, Zambia; Findings and Implications for the Future. *Vaccines*, **11**, Article 1350. https://doi.org/10.3390/vaccines11081350

[7] Cucinotta, D. and Vanelli, M. (2020) WHO Declares COVID-19 a Pandemic. *Acta Biomedica*, **91**, 157-160.

[8] Sohrabi, C., Alsafi, Z., O'Neill, N., Khan, M., Kerwan, A., Al-Jabir, A., *et al.* (2020) World Health Organization Declares Global Emergency: A Review of the 2019 Novel Coronavirus (COVID-19). *International Journal of Surgery*, **76**, 71-76. https://doi.org/10.1016/j.ijsu.2020.02.034

[9] Imran, N., Zeshan, M. and Pervaiz, Z. (2020) Mental Health Considerations for Children & Adolescents in Covid-19 Pandemic. *Pakistan Journal of Medical Sciences*, **36**, S67-S72. https://doi.org/10.12669/pjms.36.COVID19-S4.2759

[10] Mudenda, S. (2020) Letter to Editor: Coronavirus Disease (COVID-19): A Global Health Problem. *International Journal of Pharmaceutics & Pharmacology*, **4**, Article 141. https://doi.org/10.31531/2581-3080.1000141

[11] Vetter, P., Vu, D.L., L'Huillier, A.G., Schibler, M., Kaiser, L. and Jacquerioz, F. (2020) Clinical Features of Covid-19. *The BMJ*, **369**, m1470. https://doi.org/10.1136/bmj.m1470

[12] Mo, P., Xing, Y., Xiao, Y., Deng, L., Zhao, Q., Wang, H., *et al.* (2020) Clinical Characteristics of Refractory COVID-19 Pneumonia in Wuhan, China. *Clinical Infectious Diseases*, **73**, e4208-e4213. https://doi.org/10.1093/cid/ciaa270

[13] McArthur, L., Sakthivel, D., Ataide, R., Chan, F., Richards, J.S. and Narh, C.A. (2020) Review of Burden, Clinical Definitions, and Management of Covid-19 Cases. *American Journal of Tropical Medicine and Hygiene*, **103**, 625-638. https://doi.org/10.4269/ajtmh.20-0564

[14] Tadesse, S. and Muluye, W. (2020) The Impact of COVID-19 Pandemic on Education System in Developing Countries: A Review. *Open Journal of Social Sciences*, **8**, 159-170. https://doi.org/10.4236/jss.2020.810011

[15] Mudenda, S., Mainza, P., Mfune, R.L., Mufwambi, W., Hangoma, J., Kampamba, R.M., *et al.* (2022) Psychological Impact of COVID-19 on Community Pharmacists: A Cross-Sectional Study in Lusaka District, Zambia. *Fortune Journal of Health Sciences*, **5**, 579-587. https://www.fortunejournals.com/articles/psychological-impact-of-covid19-on-community-pharmacists-a-crosssectional-study-in-lusaka-district-zambia.html

[16] Jaber, M.J., AlBashaireh, A.M., AlShatarat, M.H., Alqudah, O.M., Du Preez, S.E.,

AlGhamdi, K.S., *et al.* (2022) Stress, Depression, Anxiety, and Burnout among Healthcare Workers during the COVID-19 Pandemic: A Cross-Sectional Study in a Tertiary Centre. *The Open Nursing Journal*, **16**, e187443462203140. https://doi.org/10.2174/18744346-v16-e2203140

[17] Mudenda, S., Chabalenge, B., Matafwali, S., Daka, V., Chileshe, M., Mufwambi, W., *et al.* (2022) Psychological Impact of COVID-19 on Healthcare Workers in Africa, Associated Factors and Coping Mechanisms: A Systematic Review. *Advances in Infectious Diseases*, **12**, 518-532. https://doi.org/10.4236/aid.2022.123038

[18] Kumar, A. and Nayar, K.R. (2020) COVID-19 and Its Mental Health Consequences. *Journal of Mental Health*, **30**, 1-2. https://doi.org/10.1080/09638237.2020.1757052

[19] Gewin, V. (2020) Five Tips for Moving Teaching Online as COVID-19 Takes Hold. *Nature*, **580**, 295-296. https://doi.org/10.1038/d41586-020-00896-7

[20] Jeong, H.C. and So, W.Y. (2020) Difficulties of Online Physical Education Classes in Middle and High School and an Efficient Operation Plan to Address Them. *International Journal of Environmental Research and Public Health*, **17**, Article 7279. https://doi.org/10.3390/ijerph17197279

[21] DeCoito, I. and Estaiteyeh, M. (2022) Transitioning to Online Teaching during the COVID-19 Pandemic: An Exploration of STEM Teachers' Views, Successes, and Challenges. *Journal of Science Education and Technology*, **31**, 340-356. https://doi.org/10.1007/s10956-022-09958-z

[22] Kuhfeld, M., Soland, J., Tarasawa, B., Johnson, A., Ruzek, E. and Liu, J. (2020) Projecting the Potential Impact of COVID-19 School Closures on Academic Achievement. *Educational Researcher*, **49**, 549-565. https://doi.org/10.3102/0013189X20965918

[23] Al-Balas, M., Al-Balas, H.I., Jaber, H.M., Obeidat, K., Al-Balas, H., Aborajooh, E.A., *et al.* (2020) Distance Learning in Clinical Medical Education Amid COVID-19 Pandemic in Jordan: Current Situation, Challenges, and Perspectives. *BMC Medical Education*, **20**, Article No. 513. https://doi.org/10.1186/s12909-020-02428-3

[24] Amir, L.R., Tanti, I., Maharani, D.A., Wimardhani, Y.S., Julia, V., Sulijaya, B., *et al.* (2020) Student Perspective of Classroom and Distance Learning during COVID-19 Pandemic in the Undergraduate Dental Study Program Universitas Indonesia. *BMC Medical Education*, **20**, Article No. 392. https://doi.org/10.1186/s12909-020-02312-0

[25] Mudenda, S., Zulu, A., Phiri, M.N., Ngazimbi, M., Mufwambi, W., Kasanga, M., *et al.* (2020) Impact of Coronavirus Disease 2019 (COVID-19) on College and University Students: A Global Health and Education Problem. *Aquademia*, **4**, ep20026. https://doi.org/10.29333/aquademia/8494

[26] Mudenda, S., Daka, V., Mufwambi, W., Matafwali, S.K., Chabalenge, B., Skosana, P., *et al.* (2023) Student's Perspectives, Satisfaction and Experiences with Online and Classroom Learning during the COVID-19 Pandemic: Findings and Implications on Blended Learning. *SAGE Open Medicine*, **11**, 20503121231218904. https://doi.org/10.1177/20503121231218904

[27] Lufungulo, E.S., Mwila, K., Mudenda, S., Kampamba, M., Chulu, M. and Hikaambo, C.N. (2021) Online Teaching during COVID-19 Pandemic in Zambian Universities: Unpacking Lecturers' Experiences and the Implications for Incorporating Online Teaching in the University Pedagogy. *Creative Education*, **12**, 2886-2904. https://doi.org/10.4236/ce.2021.1212216

[28] Mwila, K., Kalolo, F., Mudenda, S. and Hikaambo, C.N. (2021) Impact of COVID-19 on Academic Activities of Final Year Nursing Students: A Zambian Reflection. *International Journal of Basic & Clinical Pharmacology*, **10**, 806-812.

https://doi.org/10.18203/2319-2003.ijbcp20212377

[29] Mwila, K., Mudenda, S., Kampamba, M., Mufwambi, W., Lufungulo, E.S., Phiri, M., *et al.* (2021) Factors Affecting Access to E-Learning during the Coronavirus Disease 2019 Pandemic among Rural-Based Pharmacy Students in Zambia: A Qualitative Study Original Research. *The Open Epidemiology Journal*, **6**, 25-34. https://doi.org/10.17140/EPOJ-6-124

[30] Stanton, R., To, Q.G., Khalesi, S., Williams, S.L., Alley, S.J., Thwaite, T.L., *et al.* (2020) Depression, Anxiety and Stress during COVID-19: Associations with Changes in Physical Activity, Sleep, Tobacco and Alcohol Use in Australian Adults. *International Journal of Environmental Research and Public Health*, **17**, Article 4065. https://doi.org/10.3390/ijerph17114065

[31] Miguel, C., Castro, L., Marques Dos Santos, J.P., Serrão, C. and Duarte, I. (2021) Impact of Covid-19 on Medicine Lecturers' Mental Health and Emergency Remote Teaching Challenges. *International Journal of Environmental Research and Public Health*, **18**, Article 6792. https://doi.org/10.3390/ijerph18136792

[32] Radwan, E., Radwan, A. and Radwan, W. (2020) The Mental Health of School Students and the COVID-19 Pandemic. *Aquademia*, **4**, ep20020. https://doi.org/10.29333/aquademia/8394

[33] Jakubowski, T.D. and Sitko-Dominik, M.M. (2021) Teachers' Mental Health during the First Two Waves of the COVID-19 Pandemic in Poland. *PLOS ONE*, **16**, e0257252. https://doi.org/10.1371/journal.pone.0257252

[34] Tang, S., Xiang, M., Cheung, T. and Xiang, Y. (2021) Mental Health and Its Correlates among Children and Adolescents during COVID-19 School Closure : The Importance of Parent-Child Discussion. *Journal of Affective Disorders*, **279**, 353-360. https://doi.org/10.1016/j.jad.2020.10.016

[35] Mudenda, S., Chabalenge, B., Lindizyani Mfune, R., Nyoni, M., Mumba, A., Haanyanga, T., *et al.* (2023) Impact of COVID-19 on the Mental Health of Academic Staff: A Cross-Sectional Study at a Higher Education Institution in Lusaka, Zambia. *Scholars Academic Journal of Pharmacy*, **12**, 307-314. https://doi.org/10.36347/sajp.2023.v12i12.008

[36] Ma, K., Liang, L., Chutiyami, M., Nicoll, S., Khaerudin, T. and Ha, X.V. (2022) COVID-19 Pandemic-Related Anxiety, Stress, and Depression among Teachers: A Systematic Review and Meta-Analysis. *Work*, **73**, 3-27. https://doi.org/10.3233/WOR-220062

[37] Abdou Ahmed, G.H. (2023) Special Education Teachers' Mental Health after Reopening Schools during Covid-19. *PLOS ONE*, **18**, e0284870. https://doi.org/10.1371/journal.pone.0284870

[38] Baker, C.N., Peele, H., Daniels, M., Saybe, M., Whalen, K., Overstreet, S., *et al.* (2021) The Experience of COVID-19 and Its Impact on Teachers' Mental Health, Coping, and Teaching. *School Psychology Review*, **50**, 491-504. https://doi.org/10.1080/2372966X.2020.1855473

[39] Kush, J.M., Badillo-Goicoechea, E., Musci, R.J. and Stuart, E.A. (2022) Teachers' Mental Health during the COVID-19 Pandemic. *Educational Researcher*, **51**, 593-597. https://doi.org/10.3102/0013189X221134281

[40] Lacomba-Trejo, L., Schoeps, K., Valero-Moreno, S., Del Rosario, C. and Montoya-Castilla, I. (2022) Teachers' Response to Stress, Anxiety and Depression during COVID-19 Lockdown: What Have We Learned From the Pandemic? *Journal of School Health*, **92**, 864-872. https://doi.org/10.1111/josh.13192

[41] Ozamiz-Etxebarria, N., Mondragon, N.I., Bueno-Notivol, J., Pérez-Moreno, M. and

Santabárbara, J. (2021) Prevalence of Anxiety, Depression, and Stress among Teachers during the Covid-19 Pandemic: A Rapid Systematic Review with Meta-Analysis. *Brain Sciences*, **11**, Article 1172. https://doi.org/10.3390/brainsci11091172

[42] Santiago, I.S.D., Dos Santos, E.P., Da Silva, J.A., De Sousa Cavalcante, Y., Gonçalves Júnior, J., De Souza Costa, A.R., *et al.* (2023) The Impact of the COVID-19 Pandemic on the Mental Health of Teachers and Its Possible Risk Factors: A Systematic Review. *International Journal of Environmental Research and Public Health*, **20**, Article 1747. https://doi.org/10.3390/ijerph20031747

[43] Agyapong, B., Obuobi-Donkor, G., Burback, L. and Wei, Y. (2022) Stress, Burnout, Anxiety and Depression among Teachers: A Scoping Review. *International Journal of Environmental Research and Public Health*, **19**, Article 10706. https://doi.org/10.3390/ijerph191710706

[44] Cohen-Fraade, S. and Donahue, M. (2022) The Impact of COVID-19 on Teachers' Mental Health. *Journal for Multicultural Education*, **16**, 18-29. https://doi.org/10.1108/JME-08-2021-0131

[45] Quek, J.H., Lee, X.X., Yee, R.L.K., Tan, X.Y., Ameresekere, L.S.N., Lim, K.G., *et al.* (2022) Prevalence of Depression, Anxiety, and Stress among Medical University Lecturers in Malaysia during COVID-19 Pandemic. *Malaysian Journal of Psychiatry*, **31**, 7-12. https://doi.org/10.4103/mjp.mjp_3_22

[46] Godber, K.A. and Atkins, D.R. (2021) COVID-19 Impacts on Teaching and Learning: A Collaborative Autoethnography by Two Higher Education Lecturers. *Frontiers in Education*, **6**, Article 647524. https://doi.org/10.3389/feduc.2021.647524

[47] Rotnitsky, I., Yavich, R. and Davidovich, N. (2022) The Impact of the Pandemic on Teachers' Attitudes toward Online Teaching. *International Journal of Higher Education*, **11**, 18-38. https://doi.org/10.5430/ijhe.v11n5p18

[48] Rahayu, S., Rahmadani, E., Syafitri, E., Prasetyoningsih, L.S.A., Ubaidillah, M.F. and Tavakoli, M. (2022) Teaching with Technology during COVID-19 Pandemic: An Interview Study with Teachers in Indonesia. *Education Research International*, **2022**, Article ID: 7853310. https://doi.org/10.1155/2022/7853310

[49] Dagnino, P., Anguita, V., Escobar, K. and Cifuentes, S. (2020) Psychological Effects of Social Isolation Due to Quarantine in Chile: An Exploratory Study. *Frontiers in Psychiatry*, **11**, Article 591142. https://doi.org/10.3389/fpsyt.2020.591142

[50] Giallonardo, V., Sampogna, G., Del Vecchio, V., Luciano, M., Albert, U., Carmassi, C., *et al.* (2020) The Impact of Quarantine and Physical Distancing Following Covid-19 on Mental Health: Study Protocol of a Multicentric Italian Population Trial. *Frontiers in Psychiatry*, **11**, Article 533. https://doi.org/10.3389/fpsyt.2020.00533

[51] Aperribai, L., Cortabarria, L., Aguirre, T., Verche, E. and Borges, Á. (2020) Teacher's Physical Activity and Mental Health during Lockdown Due to the COVID-2019 Pandemic. *Frontiers in Psychology*, **11**, Article 577886. https://doi.org/10.3389/fpsyg.2020.577886

[52] Mudenda, S., Mukosha, M., Mwila, C., Saleem, Z., Kalungia, A.C., Munkombwe, D., *et al.* (2021) Impact of the Coronavirus Disease on the Mental Health and Physical Activity of Pharmacy Students at the University of Zambia: A Cross-Sectional Study. *International Journal of Basic & Clinical Pharmacology*, **10**, 324-332. https://doi.org/10.18203/2319-2003.ijbcp20211010

[53] Brooks, S.K., Webster, R.K., Smith, L.E., Woodland, L., Wessely, S., Greenberg, N., *et al.* (2020) The Psychological Impact of Quarantine and How to Reduce It: Rapid

Review of the Evidence. *The Lancet*, **395**, 912-920. https://doi.org/10.1016/S0140-6736(20)30460-8

[54] Ozamiz-Etxebarria, N., Berasategi Santxo, N., Idoiaga Mondragon, N. and Dosil Santamaría, M. (2021) The Psychological State of Teachers during the COVID-19 Crisis: The Challenge of Returning to Face-to-Face Teaching. *Frontiers in Psychology*, **11**, Article 620718. https://doi.org/10.3389/fpsyg.2020.620718

[55] Lizana, P.A. and Lera, L. (2022) Depression, Anxiety, and Stress among Teachers during the Second COVID-19 Wave. *International Journal of Environmental Research and Public Health*, **19**, Article 5968. https://doi.org/10.3390/ijerph19105968

[56] Pressley, T. (2021) Factors Contributing to Teacher Burnout during COVID-19. *Educational Researcher*, **50**, 325-327.https://doi.org/10.3102/0013189X211004138

[57] Duong, T., Van Nguyen, M.H., Lai, C.F., Chen, S.C., Dadaczynski, K., Okan, O., *et al.* (2022) COVID-19-Related Fear, Stress and Depression in School Principals: Impacts of Symptoms Like COVID-19, Information Confusion, Health-Related Activity Limitations, Working Hours, Sense of Coherence and Health Literacy. *Annals of Medicine*, **54**, 2064-2077. https://doi.org/10.1080/07853890.2022.2101688

[58] Gómez-Domínguez, V., Navarro-Mateu, D., Gómez-Domínguez, T., Giménez-Espert, M. and Del, C. (2023) How Much Do We Care about Teacher Job Insecurity during the Pandemic? A Bibliometric Review. *Frontiers in Public Health*, **11**, Article 1098013. https://doi.org/10.3389/fpubh.2023.1098013

[59] Li, H., Ma, M. and Liu, Q. (2022) How the COVID-19 Pandemic Affects Job Sentiments of Rural Teachers. *China Economic Review*, **72**, Article ID: 101759. https://doi.org/10.1016/j.chieco.2022.101759

[60] Andaregie, A. and Astatkie, T. (2021) COVID-19 Impact on Jobs at Private Schools and Colleges in Northern Ethiopia. *International Journal of Educational Development*, **85**, Article ID: 102456. https://doi.org/10.1016/j.ijedudev.2021.102456

[61] Hutchison, S.M., Watts, A., Gadermann, A., Oberle, E., Oberlander, T.F., Lavoie, P.M., *et al.* (2022) School Staff and Teachers during the Second Year of COVID-19: Higher Anxiety Symptoms, Higher Psychological Distress, and Poorer Mental Health Compared to the General Population. *Journal of Affective Disorders Reports*, **8**, Article ID: 100335. https://doi.org/10.1016/j.jadr.2022.100335

[62] Gadermann, A.M., GagnÉPetteni, M., Molyneux, T.M., Warren, M.T., Thomson, K.C., Schonert-Reichl, K.A., *et al.* (2023) Teacher Mental Health and Workplace Wellbeing in a Global Crisis: Learning from the Challenges and Supports Identified by Teachers One Year into the COVID-19 Pandemic in British Columbia, Canada. *PLOS ONE*, **18**, e0290230. https://doi.org/10.1371/journal.pone.0290230

[63] Pressley, T., Marshall, D.T., Love, S.M. and Neugebauer, N.M. (2023) Teacher Morale and Mental Health at the Conclusion of the COVID-19 Pandemic. *Education Sciences*, **13**, Article 1222. https://doi.org/10.3390/educsci13121222

[64] Hidalgo-Andrade, P., Hermosa-Bosano, C. and Paz, C. (2021) Teachers' Mental Health and Self-Reported Coping Strategies during the Covid-19 Pandemic in Ecuador: A Mixed-Methods Study. *Psychology Research and Behavior Management*, **14**, 933-944. https://doi.org/10.2147/PRBM.S314844

[65] Agyapong, B., Chishimba, C., Wei, Y., Da Luz Dias, R., Eboreime, E., Msidi, E., *et al.* (2023) Improving Mental Health Literacy and Reducing Psychological Problems among Teachers in Zambia: Protocol for Implementation and Evaluation of a Wellness4Teachers Email Messaging Program. *JMIR Research Protocols*, **12**, e44370. https://doi.org/10.2196/44370

[66] Mudenda, S., Chomba, M., Mukosha, M., Daka, V., Chileshe, M., Okoro, R.N., *et al.*

(2022) Psychological Impact of Coronavirus Disease (COVID-19) on Health Professions Students at the University of Zambia: A Cross-Sectional Study. *The Pan African Medical Journal*, **42**, Article 237.

[67] Muzyamba, C. (2021) Local Characterization of the COVID-19 Response: The Case of a Lockdown in Lusaka, Zambia. *Global Health Research and Policy*, **6**, Article No. 38. https://doi.org/10.1186/s41256-021-00220-4

[68] Lowa, M., Sitali, L., Siame, M. and Musonda, P. (2018) Human Mobility and Factors Associated with Malaria Importation in Lusaka District, Zambia: A Descriptive Cross-Sectional Study. *Malaria Journal*, **17**, Article No. 404. https://doi.org/10.1186/s12936-018-2554-4

[69] Charan, J. and Biswas, T. (2013) How to Calculate Sample Size for Different Study Designs in Medical Research? *Indian Journal of Psychological Medicine*, **35**, 121-126. https://doi.org/10.4103/0253-7176.116232

[70] Zigmond, A.S. and Snaith, R.P. (1983) The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica*, **67**, 361-370. https://doi.org/10.1111/j.1600-0447.1983.tb09716.x

[71] Olssøn, I., Mykletun, A. and Dahl, A.A. (2005) The Hospital Anxiety and Depression Rating Scale: A Cross-Sectional Study of Psychometrics and Case Finding Abilities in General Practice. *BMC Psychiatry*, **5**, Article No. 46. https://doi.org/10.1186/1471-244X-5-46

[72] Khanal, P., Devkota, N., Dahal, M., Paudel, K. and Joshi, D. (2020) Mental Health Impacts among Health Workers during COVID-19 in a Low Resource Setting: A Cross-Sectional Survey from Nepal. *Globalization and Health*, **16**, Article No. 89. https://doi.org/10.1186/s12992-020-00621-z

[73] Saidi, I., Koumeka, P.P., Ait Batahar, S. and Amro, L. (2021) Factors Associated with Anxiety and Depression among Patients with Covid-19. *Respiratory Medicine*, **186**, Article ID: 106512. https://doi.org/10.1016/j.rmed.2021.106512

[74] Baldonedo-Mosteiro, C., Mosteiro-Díaz, M.P., Franco-Correia, S. and Tardón, A. (2022) Emotional Burden among Pharmacists and Pharmacy Technicians during the COVID-19 Lockdown: A Cross-Sectional Study. *International Journal of Environmental Research and Public Health*, **19**, Article 10558. https://doi.org/10.3390/ijerph191710558

[75] Özdin, S. and Bayrak Özdin, Ş. (2020) Levels and Predictors of Anxiety, Depression and Health Anxiety during COVID-19 Pandemic in Turkish Society: The Importance of Gender. *International Journal of Social Psychiatry*, **66**, 504-511. https://doi.org/10.1177/0020764020927051

[76] Bocéréan, C. and Dupret, E. (2014) A Validation Study of the Hospital Anxiety and Depression Scale (HADS) in a Large Sample of French Employees. *BMC Psychiatry*, **14**, Article No. 354. https://doi.org/10.1186/s12888-014-0354-0

[77] Liang, L., Ren, H., Cao, R., Hu, Y., Qin, Z., Li, C., *et al.* (2020) The Effect of COVID-19 on Youth Mental Health. *Psychiatric Quarterly*, **91**, 841-852. https://doi.org/10.1007/s11126-020-09744-3

[78] Hamaideh, S.H., Al-Modallal, H., Tanash, M. and Hamdan-Mansour, A. (2022) Depression, Anxiety and Stress among Undergraduate Students during COVID-19 Outbreak and "Home-Quarantine." *Nursing Open*, **9**, 1423-1431. https://doi.org/10.1002/nop2.918

[79] Ishak, A.R., Adnan, N.A., Aziz, M.Y., Nazl, S.N., Mualif, S.A., Ishar, S.M., *et al.* (2022) The Impact of the Covid-19 Pandemic on Depression, Anxiety, and Stress among Teachers in Malaysia: A Cross-Sectional Study. *Malaysian Journal of Medi-*

cal Sciences, **18**, 43-49.

[80] Silva, D.F.O., Cobucci, R.N., Lima, S.C.V.C. and De Andrade, F.B. (2021) Prevalence of Anxiety, Depression, and Stress among Teachers during the COVID-19 Pandemic: A PRISMA-Compliant Systematic Review. *Medicine*, **100**, e27684. https://doi.org/10.1097/MD.0000000000027684

[81] Hossain, M.T., Islam, M.A., Jahan, N., Nahar, M.T., Sarker, M.J.A., Rahman, M.M., *et al.* (2022) Mental Health Status of Teachers during the Second Wave of the COVID-19 Pandemic: A Web-Based Study in Bangladesh. *Frontiers in Psychiatry*, **13**, Article 938230. https://doi.org/10.3389/fpsyt.2022.938230

[82] Wang, Y., Li, Q., Tarimo, C.S., Wu, C., Miao, Y. and Wu, J. (2021) Prevalence and Risk Factors of Worry among Teachers during the COVID-19 Epidemic in Henan, China: A Cross-Sectional Survey. *BMJ Open*, **11**, e045386. https://doi.org/10.1136/bmjopen-2020-045386

[83] Zhang, X., Li, S., Wang, S. and Xu, J. (2022) Influence of Job Environment on the Online Teaching Anxiety of College Teachers in the Online Teaching Context: The Mediating Role of Subjective Well-Being. *Frontiers in Public Health*, **10**, Article 978094. https://doi.org/10.3389/fpubh.2022.978094

[84] Toto, G.A. and Limone, P. (2021) Motivation, Stress and Impact of Online Teaching on Italian Teachers during Covid-19. *Computers*, **10**, Article 75. https://doi.org/10.3390/computers10060075

[85] Panisoara, I.O., Lazar, I., Panisoara, G., Chirca, R. and Ursu, A.S. (2020) Motivation and Continuance Intention towards Online Instruction among Teachers during the COVID-19 Pandemic: The Mediating Effect of Burnout and Technostress. *International Journal of Environmental Research and Public Health*, **17**, Article 8002. https://doi.org/10.3390/ijerph17218002

[86] Kamal, T. and Illiyan, A. (2021) School Teachers' Perception and Challenges towards Online Teaching during COVID-19 Pandemic in India: An Econometric Analysis. *Asian Association of Open Universities Journal*, **16**, 311-325. https://doi.org/10.1108/AAOUJ-10-2021-0122

[87] AL Awwas, M.Y., Alqasem, O.S., Alhussain, H.M. and Alqahtani, A.M. (2023) The Prevalence of Depression and Its Associated Risk Factors among Government Primary School Teachers in Dammam, Khobar, and Qatif (2019-2021): A Cross-Sectional Study. *Cureus*, **15**, e36271. https://doi.org/10.7759/cureus.36271

[88] Mohamed, O.G.N., Mohamed, E.G.N., Ahmed, R., Aburas, L., Ali, M. and Hamdan, H.Z. (2022) Depression, Anxiety, and Stress among Sudanese Medical Students during the COVID-19 Lockdown Period. *Open Access Macedonian Journal of Medical Sciences*, **10**, 1365-1371. https://doi.org/10.3889/oamjms.2022.9432

[89] Flores, J., Caqueo-Urízar, A., Escobar, M. and Irarrázaval, M. (2022) Well-Being and Mental Health in Teachers: The Life Impact of COVID-19. *International Journal of Environmental Research and Public Health*, **19**, Article 15371. https://doi.org/10.3390/ijerph192215371

[90] Galea, S., Merchant, R.M. and Lurie, N. (2020) The Mental Health Consequences of COVID-19 and Physical Distancing: The Need for Prevention and Early Intervention. *JAMA Internal Medicine*, **180**, 817-818. https://doi.org/10.1001/jamainternmed.2020.1562

[91] Venkatesh, A. and Edirappuli, S. (2020) Social Distancing in Covid-19: What Are the Mental Health Implications? *The BMJ*, **369**, m1379. https://doi.org/10.1136/bmj.m1379

[92] Saeed, H., Qureshi, A.F., Rasool, M.F., Islam, M., Hashmi, F.K., Saeed, A., *et al.*

(2023) Determinants of Anxiety and Depression among University Teachers during Third Wave of COVID-19. *BMC Psychiatry*, **23**, Article No. 233. https://doi.org/10.1186/s12888-023-04733-9

[93] Wakui, N., Abe, S., Shirozu, S., Yamamoto, Y., Yamamura, M., Abe, Y., *et al.* (2021) Causes of Anxiety among Teachers Giving Face-to-Face Lessons after the Reopening of Schools during the COVID-19 Pandemic: A Cross-Sectional Study. *BMC Public Health*, **21**, Article No. 1050. https://doi.org/10.1186/s12889-021-11130-y

[94] Robinson, L.E., Valido, A., Drescher, A., Woolweaver, A.B., Espelage, D.L., LoMurray, S., *et al.* (2023) Teachers, Stress, and the COVID-19 Pandemic: A Qualitative Analysis. *School Mental Health*, **15**, 78-89. https://doi.org/10.1007/s12310-022-09533-2

[95] Ward, J.L. and Viner, R.M. (2017) The Impact of Income Inequality and National Wealth on Child and Adolescent Mortality in Low and Middle-Income Countries. *BMC Public Health*, **17**, Article No. 429. https://doi.org/10.1186/s12889-017-4310-z

[96] Pieh, C., Budimir, S. and Probst, T. (2020) The Effect of Age, Gender, Income, Work, and Physical Activity on Mental Health during Coronavirus Disease (COVID-19) Lockdown in Austria. *Journal of Psychosomatic Research*, **136**, Article ID: 110186. https://doi.org/10.1016/j.jpsychores.2020.110186

[97] Fruehwirth, J.C., Biswas, S. and Perreira, K.M. (2021) The Covid-19 Pandemic and Mental Health of First-Year College Students: Examining the Effect of Covid-19 Stressors Using Longitudinal Data. *PLOS ONE*, **16**, e0247999. https://doi.org/10.1371/journal.pone.0247999

[98] Raghupathi, V. and Raghupathi, W. (2020) The Influence of Education on Health: An Empirical Assessment of OECD Countries for the Period 1995-2015. *Archives of Public Health*, **78**, Article No. 20. https://doi.org/10.1186/s13690-020-00402-5

[99] Talevi, D., Socci, V., Carai, M., Carnaghi, G., Faleri, S., Trebbi, E., *et al.* (2020) Mental Health Outcomes of the COVID-19 Pandemic gli Esiti di Salute Mentale Della Pandemia di COVID-19. *Rivista di Psichiatria*, **55**, 137-144.

[100] Appleby, J.A., King, N., Saunders, K.E., Bast, A., Rivera, D., Byun, J., *et al.* (2022) Impact of the COVID-19 Pandemic on the Experience and Mental Health of University Students Studying in Canada and the UK: A Cross-Sectional Study. *BMJ Open*, **12**, e050187. https://doi.org/10.1136/bmjopen-2021-050187